



Global RF SolutionsSM

RF Engineering Consultants

"Serving The Wireless Industries Needs"

1990 N. Alma School Road #122
Chandler, AZ 85224
(480) 814-1393

Evaluation of Human Exposure to Radio Frequency Emissions



**Analysis of 568437 - Trinidad
Trinidad, CA**

LIMITED WARRANTY

Global RF Solutions warrants that this analysis was performed using substantially the methods that are referenced and described in this report and based entirely upon the information on the antenna site that was provided by US Cellular. Global RF Solutions disclaims all other warranties either expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose.

In no event will Global RF Solutions be liable to you or by any other person for damages, including any loss of profits, lost savings, or other special, exemplary, punitive, incidental or consequential damages arising out of your use or inability to use the analysis whether such claim is based on breach of warranty, contract, tort or other legal theory and regardless of the causes of such loss or damages. In no event shall Global RF Solutions entire liability to you under this Agreement exceed an amount equal to the price paid to for the analysis.

TABLE OF CONTENTS

1. INTRODUCTION

2. SITE DESCRIPTION

3. ANALYSIS

4. RESULTS

5. CONCLUSIONS AND RECOMMENDATIONS

APPENDIX A – LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1. Introduction

An analysis of this Communications Facility has been completed to determine if it will be compliant with guidelines set forth by the Federal Communications Commission (FCC) with regards to maximum human exposure limits. This site was surveyed on Thursday, April 13, 2006 at 16:30. This determination of FCC Compliance is **ONLY** applicable to US Cellular transmitting equipment. This has been accomplished with the use of predictive modeling software and measurements performed with a Narda 8715 meter serial #10003 and a shaped A8742D probe serial #01151. The meter and probe are properly calibrated until August of 2006. The Narda survey has been done to measure current conditions.

The Radio Frequency Power Density predictions have been done using 100% transmitter duty cycle. This will predict a worst-case scenario for safety reasons. The predictive software tool utilizes a cylindrical model that provides spatially averaged power density that is calculated in one square foot increments (pixels). The composite RF fields are displayed as a percentage of the exposure limit. The software tool utilized for predictive analysis is RoofView®, a product developed by Richard Tell Associates, Inc. The FCC recognizes this software tool as a valid means of determining Maximum Permissible Exposure levels (MPE).

2. SITE DESCRIPTION

Site ID: 568437		Site Name: Trinidad			
Date of Evaluation	4/13/2006	Site Evaluator (name): Harry Young			
Site Type	Building	Tower/Monopole	XX	Water Tower	
Address: End of Lighthouse Rd, Trinidad, CA					
GPS NAD83	N 41 3 14.01	W 127 9 2.07	Structure Height AGL	22'	
Access Restricted	Yes				

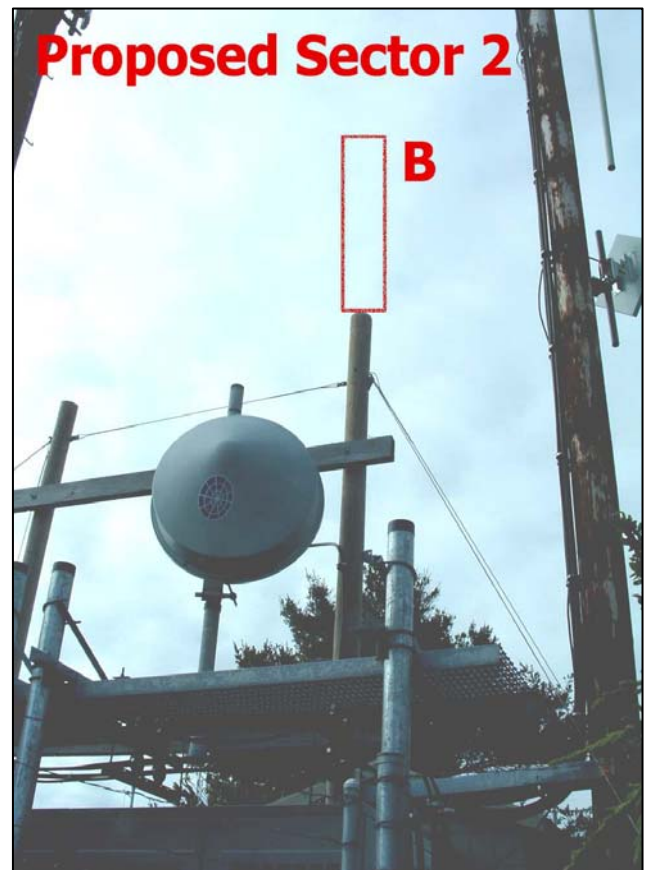
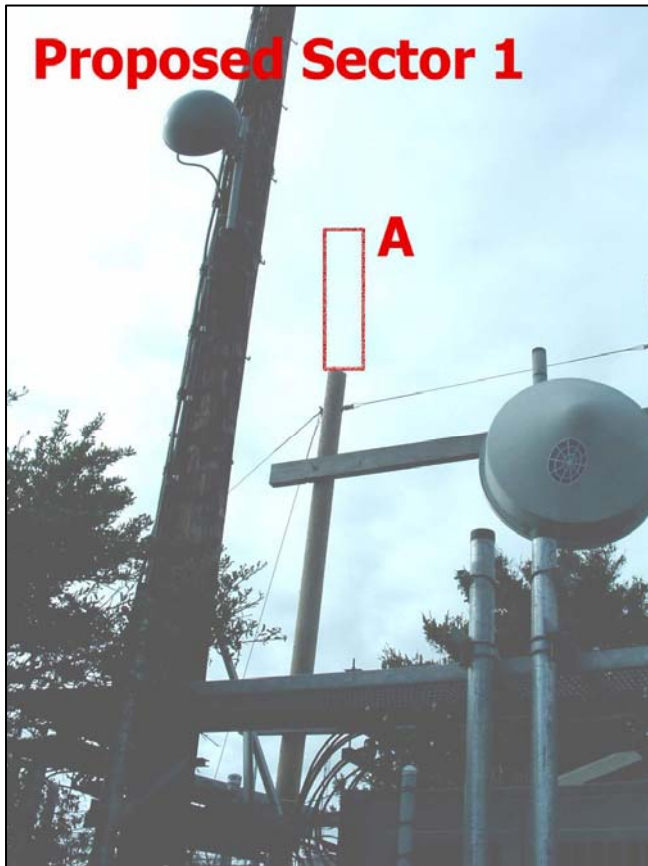
This communications site will be located on two monopoles inside a locked compound. The antennas can be accessed by climbing the monopoles. The service providers will restrict the access to the antennas. Access is not restricted to EME Awareness trained personnel and an RF Safety plan is not in place.

These are photographs of the 568437 Trinidad site:



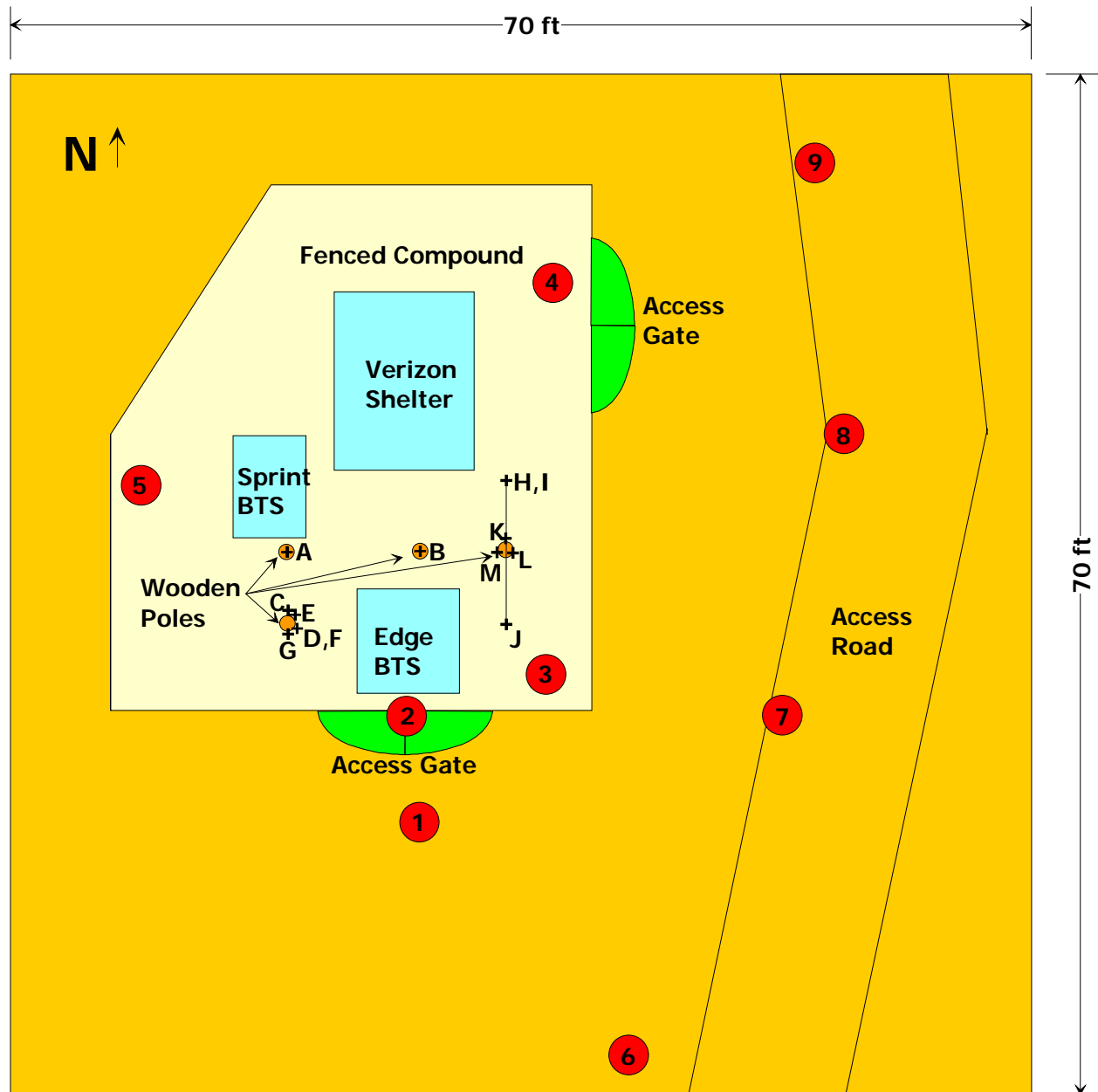
2. SITE DESCRIPTION (continued)

These are photographs of the 568437 Trinidad site:



2. SITE DESCRIPTION (continued)

This drawing depicts the layout of the 568437 Trinidad communications facility. The antenna legend is on page 8.



2. SITE DESCRIPTION (continued)

This is the antenna legend for the drawing on page 7.

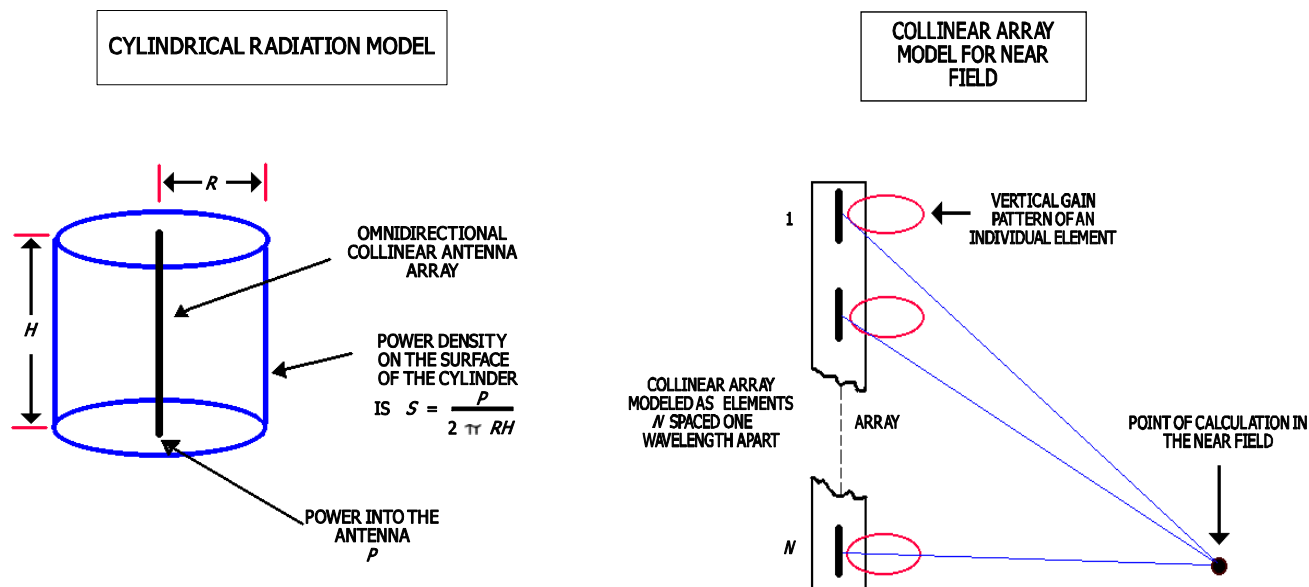
Antenna ID	Owner	Frequency	Antenna Manufacturer	Antenna Model
A	US Cellular	875.00000	Antel	RWA-80015
B	US Cellular	875.00000	Antel	RWA-80015
C	Edge Wireless	1965.00000	EMS	RR90-17-00
cc	Edge Wireless	1970.00000	EMS	RR90-17-00
D	Edge Wireless	1965.00000	EMS	RR65-18-02
dd	Edge Wireless	1970.00000	EMS	RR65-18-02
E	Sprint	1930.00000	EMS	Panel
F	Sprint	1930.00000	EMS	Panel
G	Sprint	1930.00000	EMS	Panel
H	Verizon	885.00000	Decibel	Omni
I	Verizon	885.00000	Decibel	Omni
J	Verizon	885.00000	Decibel	Omni
K	Verizon	885.00000	EMS	Panel
L	Verizon	885.00000	EMS	Panel
M	Verizon	885.00000	EMS	Panel

3. ANALYSIS

Site Modeling:

Electromagnetic energy (EME) exposure situations have been modeled at this site by using the following techniques. A cylindrical model in the near field of a vertical collinear antenna is run through a computer calculation engine. This model was used to compute the average power density on the surface of an imaginary cylinder, with a height equal to the antenna's aperture, and a radius equal to the distance of interest.

The collinear antenna model estimates the number of elements in the array and in the gain pattern of each element. The power density in the near field of the antenna is calculated by combining the contributions from each element in the array. The completed calculations of these models are plotted in the RESULTS section. The software tool utilized for predictive analysis is RoofView®, a product of Richard Tell Associates, Inc.

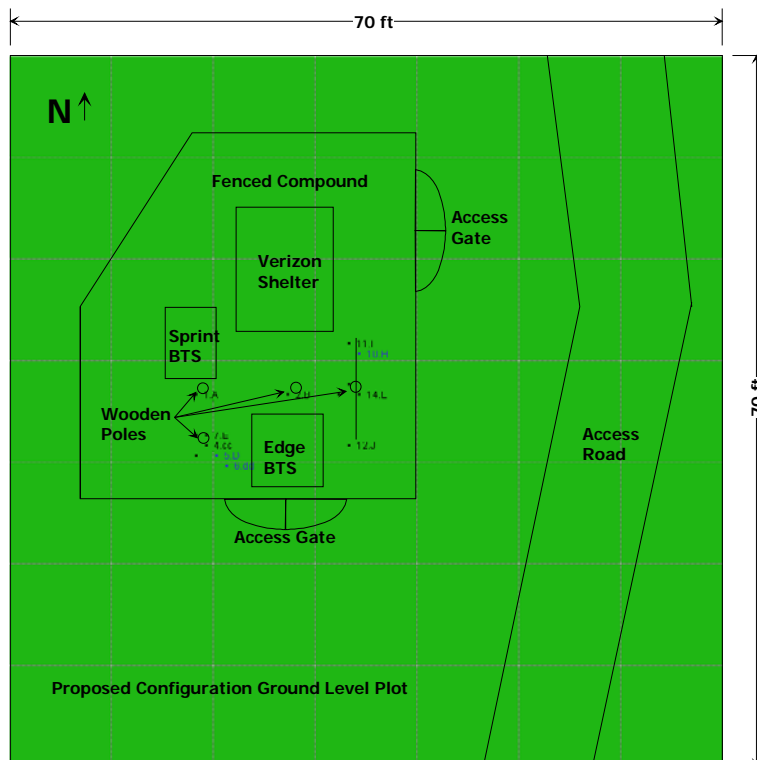
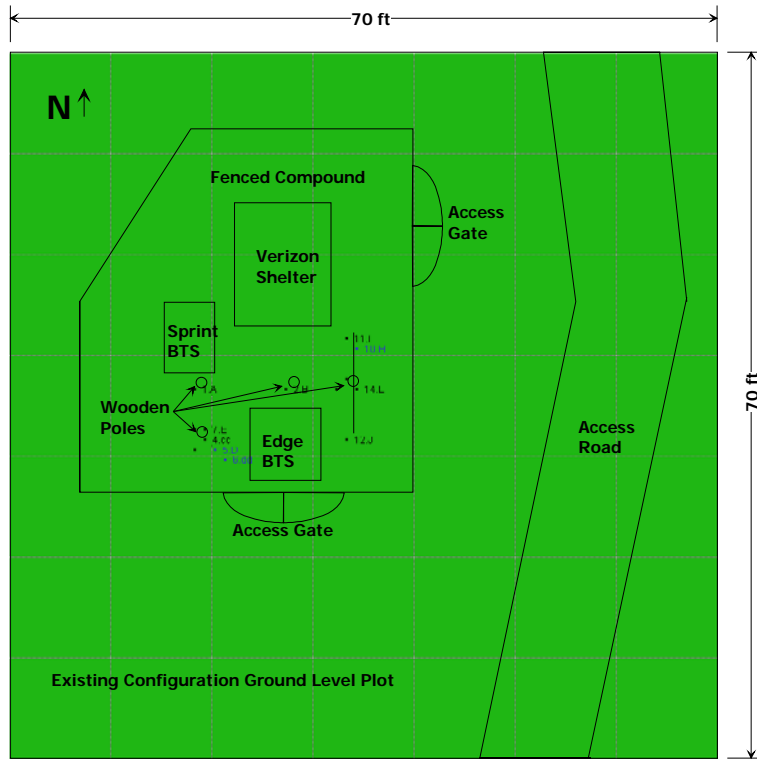


RF Survey:

The field survey validates modeling results and defines exclusion areas at the site. Electromagnetic energy (EME) fields were assessed through direct measurement at the transmitter site, using properly calibrated field probes. Due to the possibility that EME fields may exist over a wide frequency range within which the exposure limits vary, field measurements were performed with a meter equipped with a frequency shaped probe that can automatically weigh each field contribution in accordance with it's frequency.

4. RESULTS

This is the predicted software plot using the FCC PUBLIC and FCC OCCUPATIONAL standard. The grid is in 10-foot increments. This shows that the MPE limits cannot be exceeded at this site currently and with the proposed addition of US Cellular antennas.



**FCC OCCUPATIONAL
MPE %
UPTIME = 100%**

GREEN = <20%

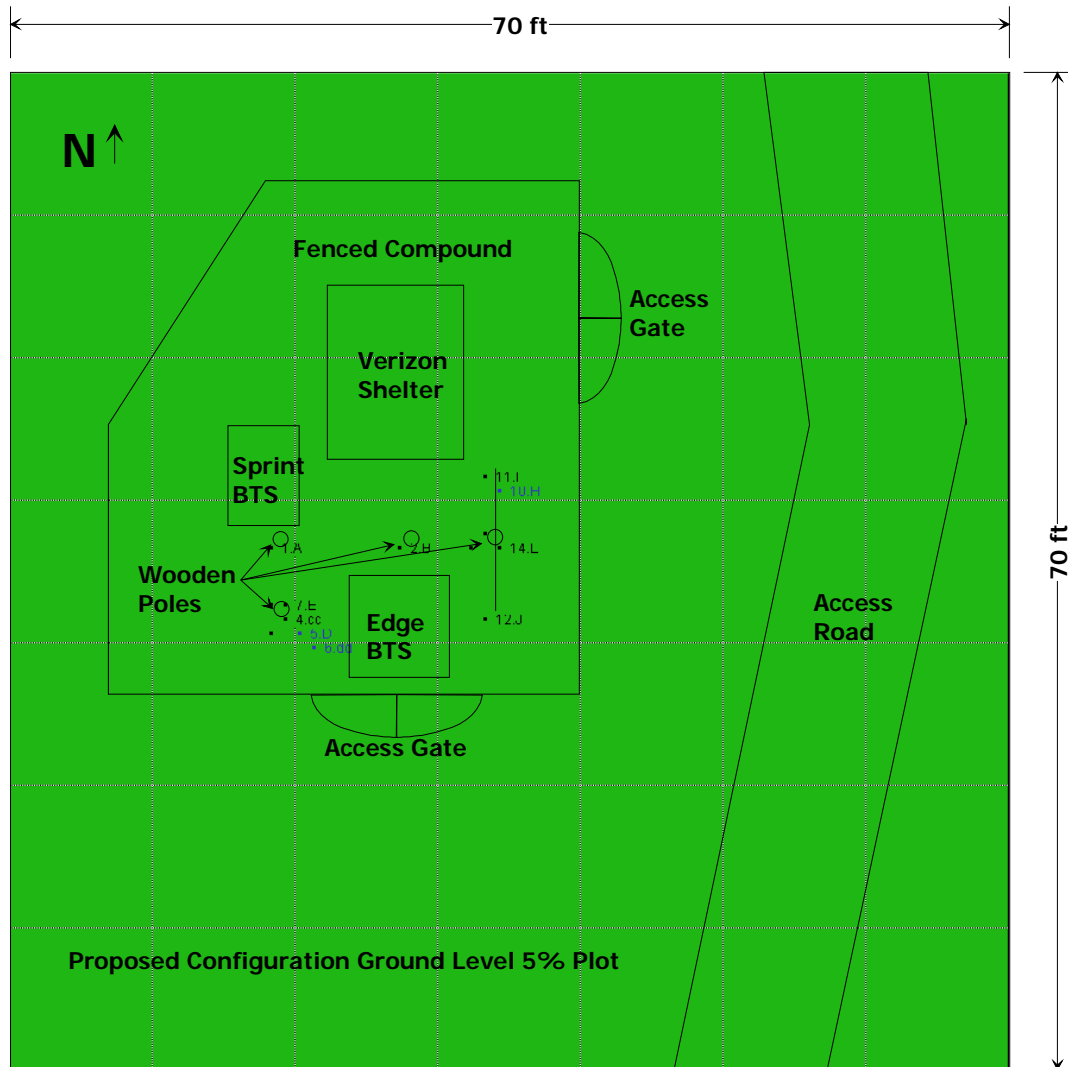
BLUE = 20% - 100%

YELLOW = 100%-1000%

RED = >1000%

4. RESULTS (continued)

This is the predicted software plot with the threshold set to 5% of the FCC PUBLIC Standard for the US Cellular antennas only. All other antennas are turned off! The grid is in 10-foot increments.



UPTIME = 100%

GREEN = < 5% FCC
Public Standard

PURPLE = > 5% FCC
Public Standards

4. RESULTS (continued)

Narda meter survey results for the existing configuration are referenced on the site drawing (page 7). The measured results are listed in the accompanied table.

Reference Point	Spatial Maximum % FCC Occupational MPE Limit	Spatial Average % FCC Occupational MPE Limit	Distance in feet indicated RF field decreases below General Public MPE Limit (Spatial Average)	US Cellular Antenna
1	4%	<1%	N/A	N/A
2	3.7%	<1%	N/A	N/A
3	4%	<1%	N/A	N/A
4	4%	<1%	N/A	N/A
5	3.7%	<1%	N/A	N/A
6	3.8%	<1%	N/A	N/A
7	3.7%	<1%	N/A	N/A
8	3.6%	<1%	N/A	N/A
9	3%	<1%	N/A	N/A

NOTE: US Cellular antenna RF field indications above represent measurements obtained in accessible regions near the antennas. Antenna mounting height and/or location may prevent RF field measurements of specific antennas.

5. CONCLUSIONS AND RECOMMENDATIONS

Conclusion:

The predicted software analysis has shown that US Cellular cannot exceed maximum permissible exposure levels for the FCC Public or FCC Occupational standards at this proposed site. Narda survey measurements confirm that the existing configuration of service providers also does not exceed levels. US Cellular has properly proposed their equipment to be compliant with FCC guidelines concerning MPE issues. US Cellular **will be compliant** with FCC Guidelines.

Recommendations:

US Cellular will be compliant with FCC Guidelines at this site as proposed. Site access is restricted and not controlled by an RF safety plan. US Cellular is not required to perform additional mitigation procedures.

The use of a "Notice" sign is recommended as well as a "10-Site guidelines" sign. These signs should be posted at the gates used to access the compound.

Landlord must ensure that US Cellular antenna access will be restricted to personnel that have been authorized by US Cellular (EME Awareness trained personnel only). This would include all maintenance personnel and contractors accessing the antenna area.

APPENDIX A- LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(REFERENCE= TABLE 1. Title 47 CFR)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

NOTE 1: **Occupational/controlled** limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: **General population/uncontrolled** exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.